

6. REMEDIAL ACTION WORK PLAN

This section details the approach to implementing the remedial design. It includes the steps and schedule for conducting the remedial action. The following subsections detail the technical requirements for the remedial action.

6.1 Project Controls

Project controls include field oversight/construction management, protocol and coordination of field oversight, project cost estimate, and the project schedule.

6.1.1 Field Oversight/Construction Management

The DOE-ID remediation project manager will be responsible for notifying the EPA and IDEQ of project activities. The project manager will also serve as the single interface point for all routine contact between the Agencies, the INEEL Management and Operations (M&O) contractor, and the subcontractor.

The INEEL M&O contractor will provide field oversight and construction management services for this project. The INEEL M&O contractor will also provide field support services for health and safety, radiological control, environmental compliance, quality assurance, and landlord services. An organization chart and position description are provided in the project HASP (INEEL 2001c).

6.1.2 Protocol and Coordination of Field Oversight

The DOE will notify the EPA and IDEQ WAG managers of pending remedial action activities, such as project startup, closeout, and inspections. Activities related to preliminary inspections, the prefinal inspection, and the final inspection are included in Section 6.5. In accordance with the FFA/CO, a minimum notification of 14 calendar days will be provided prior to prefinal inspection activities.

Visitors to the site who wish to observe activities must meet badging and training requirements necessary to enter INEEL facilities. Training requirements for visitors are described in Section 4 of the project HASP (INEEL 2001c).

6.1.3 Project Cost Estimate

The cost estimates for the V-Tanks remedial action addressed by this work plan are presented in Appendix F, Remedial Action Cost Estimate.

6.1.4 Project Schedule

The V-Tanks remedial action working schedule summary with associated enforceable milestones is presented in Table 6-1. The project working schedule including all project tasks, starting with V-9 sampling and the Group 2 RD/RA WP preparation through completion of the final inspection, is presented in Figure 6-1. The schedule does not include any contingency for delay due to late or slow document reviews or for field activities with productivity lost as a result of adverse weather conditions.

Table 6-1. Working schedule and enforceable dates for the OU 1-10 Group 2 remedial action.

Activity	Planned Start Date	Planned Completion Date	Enforceable Completion Date
Remedial Design(Group 2 RD/RA Work Plan)			
Submittal of draft RD/RA Work Plan to Agencies ^a	7/16/2001	7/16/2001	8/6/2001 ^a
Agencies Review of draft RD/RA Work Plan	7/17/2001	8/30/2001	— ^b
Submittal of draft final RD/RA Work Plan to Agencies		10/16/2001	— ^b
Agencies Review of draft final RD/RA Work Plan	10/17/2001	10/31/2001	— ^b
RD/RA Work Plan Becomes Final		11/16/2001	— ^b
Post-ROD Sampling (Tank V-9 Criticality Sampling)			
Tank V-9 Sampling	4/30/2001	5/10/2001	
Tank V-9 Sample Analysis	5/10/2001	6/20/2001	
Transmit Unvalidated Data Results to Agencies	6/21/2001	6/21/2001	
Tank V-9 Data Validation	6/21/2001	7/11/2001	
Perform V-9 Criticality Analysis	6/21/2001	7/20/2001	
Submittal of Tank V-9 Sampling Limitation and Validation Reports to Agencies	7/20/2001	7/20/2001	8/28/2001 ^c
V-Tanks Remedial Action			
Agency Prefinal Inspection Prior to Tank Contents Removal	6/20/2002	6/21/2002	
Complete Tanks V-1, V-2, and V-3 Contents Removal		9/19/2002	
Complete Tank Contents Waste Transportation, Treatment, and Disposal		9/30/2004	
Complete Tank V-9 Contents Removal		10/14/2002	
Complete Tanks and Ancillary Piping/Equipment Removal		6/18/2003	
Agency Prefinal Inspection after Tanks and Ancillary Piping/Equipment Removal	7/15/2003	7/16/2003	
Complete Final Soil Excavation and Backfill to Complete Remedial Action		8/13/2004	
Agency Final Inspection	8/16/2004	8/17/2004	
Submit Group 2 Final Inspection Report		9/28/2004	
Agency Review of Group 2 Final Inspection Report	TBD	TBD	
Group 2 Final Inspection Report Finalized		TBD	
Five-Year Review	— ^d	— ^d	
<p>a. The enforceable date is from the OU 1-10 Remedial Design/Remedial Action Scope of Work (DOE-ID 2000a).</p> <p>b. Review periods are consistent with Section 8.13 of the FFA/CO (DOE-ID 1991).</p> <p>c. Limitation and validation reports will be submitted with the FFA/CO (DOE-ID 1991) required 120 days from start of sampling; date is based upon 4/30/2001 start of sampling. This is a required submittal data to the Agencies, but is not an FFA/CO "enforceable" date.</p> <p>d. The first five-year review is planned for 2005. Specific dates will be determined by the Agencies in the future.</p>			

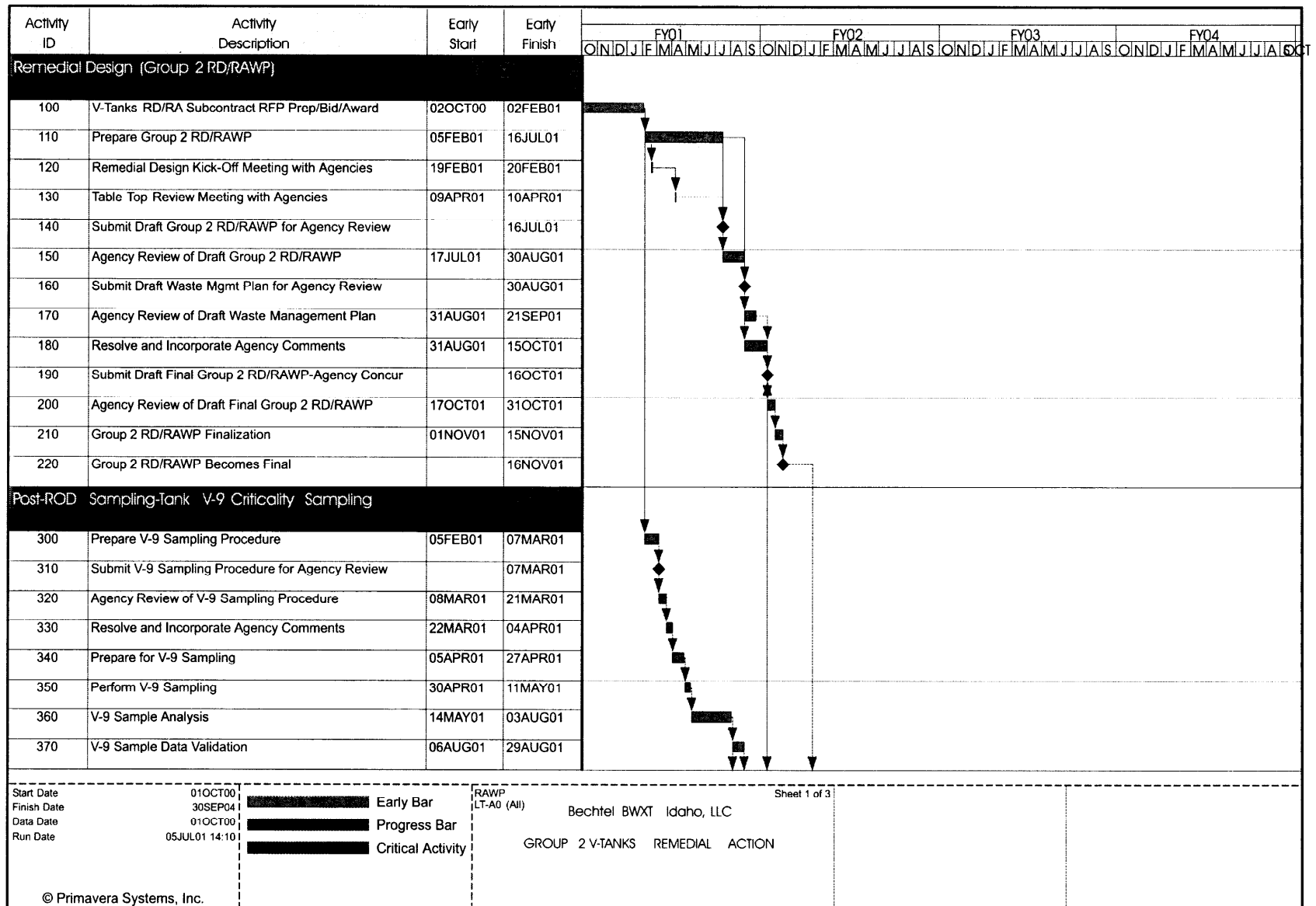


Figure 6-1. V-Tanks remedial design/remedial action project working schedule.

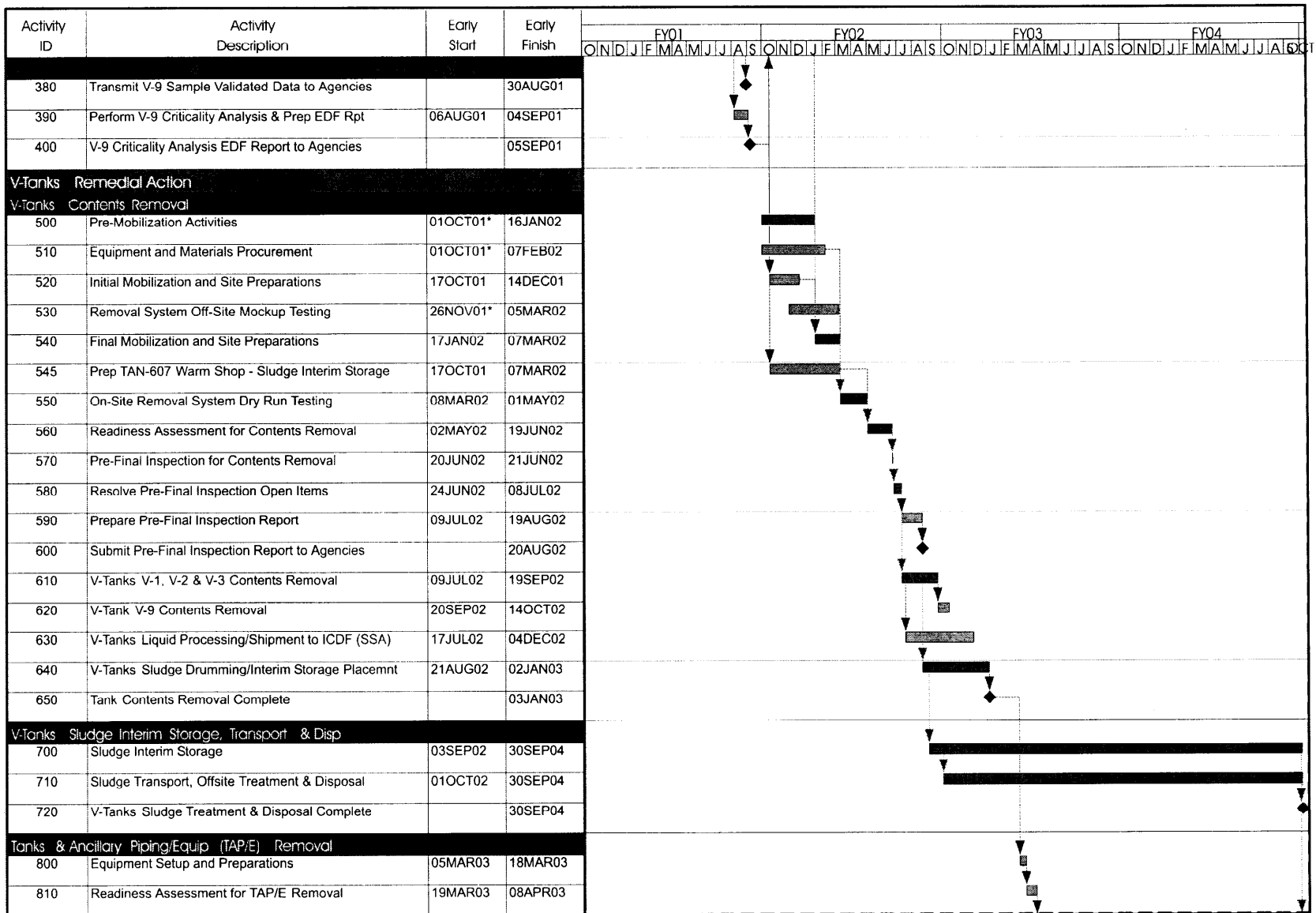


Figure 6-1. (continued).

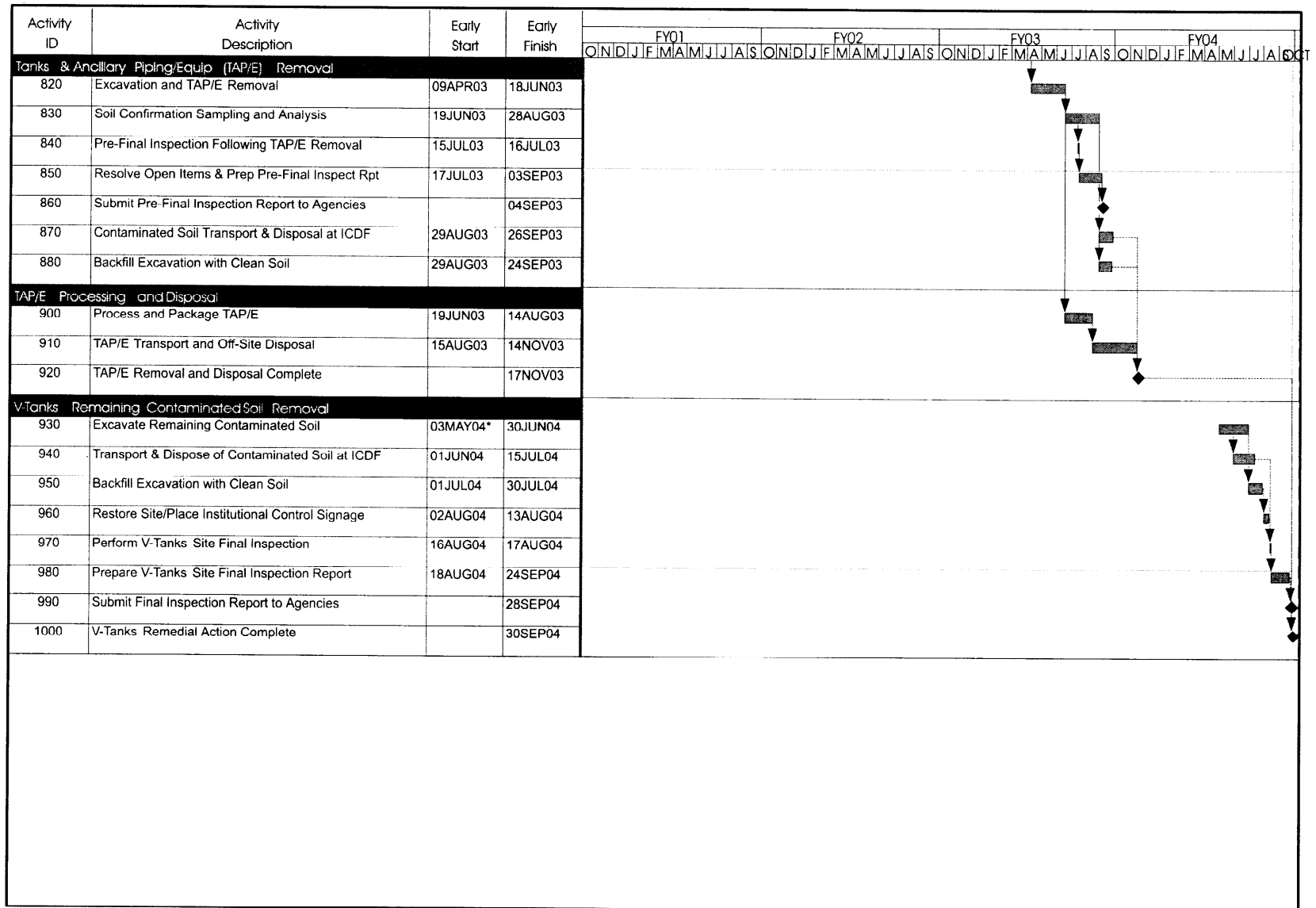


Figure 6-1. (continued).

6.2 Remedial Action Work Tasks

Implementation of the remedial design will include a sequence of tasks to safely and efficiently remove the contents from the V-Tanks, remove the V-Tanks and piping, remove VCO components within the AOC (INEEL 2001a), further characterize and excavate contaminated soil, and properly store, transport and dispose of contaminated materials. This section provides a description of the subcontractor's work and subcontractor/contractor interfaces. Additional detail is provided in the design drawings, technical specifications, and engineering calculations (Appendices A, B, and C).

6.2.1 Premobilization

Prior to mobilization, as each task is undertaken, all associated documentation to support the work control for that given task will be prepared and approved. These activities ensure operational readiness prior to mobilization. Job safety analyses, safe work permits, radiological work permits, ALARA reviews, confined space entry permits, operational procedures, and other work control forms will be prepared for each major portion of the remedial action. Additional activities include subsurface investigations to identify lines, utilities, and subsurface structures; preparation of critical lift plans; prejob briefings; and equipment procurement. Remediation systems to be used to remove the tank contents will be simulated and tested by field personnel to ensure that all equipment operates properly and is configured as planned for field use. System mockups will also be used to provide comprehensive training to field operators.

6.2.2 Construction Activities

Construction activities will include all work necessary to complete the objectives of the RD/RA WP. The primary construction tasks are described in the following subsections.

6.2.2.1 Mobilization. Mobilization activities will begin with the preexcavation site preparation activities. These activities include establishing the field office with associated utilities, radiological control stations, monitoring locations, and control zones. Site preparation will require the installation of secure fencing and site drainage controls, the construction of shielding using concrete barriers, the construction of secondary containment and laydown areas, and the preparation of the temporary waste storage areas and drum-filling station. The onsite access roadways will be constructed at this time. Mobilization will also include the sequenced delivery of equipment and personnel to the site, as needed, for the site remediation. Following the mobilization of the equipment necessary for the tank contents removal, prestartup testing of the pumping activities will be performed to ensure that the system operates properly and is configured correctly. The results of the mockup and prestartup tests will be provided to support the first Pre-Final Inspection by the Agencies or their designees. The Pre-Final Inspections are discussed in Section 6.5.

6.2.2.2 Tank Contents Removal. A Readiness Assessment will be conducted before removing the tank contents to ensure that all documents, permits, equipment, and safety measures are in place. Before commencing any tank content removal, the 6-in. valve located in the pump room of Building TAN-616 will be opened to allow any liquids present to draw into the tanks. The tank contents will be removed from each of the four tanks prior to any excavation activities. A graded approach will be used due to the nature of the sludge and debris in the tanks. Process pumping equipment will be connected between the waste receptacle and the tank to be emptied. Pipes and hoses used in the pumping system will be double-lined and equipped with sleeves or similar measures to provide secondary containment and to protect against accidental releases and leaks. The process equipment will include a series of filters, pumps, control meters, and portable waste containers. The piping system will be configured to remove the supernatant from Tank V-3. This liquid will be retained separately as it is a large quantity of liquid containing relatively low concentrations of contaminants. This liquid may be used to aid in flushing the

tanks, rather than adding clean water. The sludge from each of the TSF-09 tanks will then be pumped into polyethylene containers (e.g., HICs) where a filter system will extract liquids from the sludge. The extracted liquid will be recirculated to flush the tank interior. The extraction and recirculation of liquids will continue until measured activity on the filtered liquid is approximately equal to the activity of the liquid as it exits the tank. Air sparging, mechanical agitation, or high-pressure water may be used to suspend the tank sludge. This recirculation process will render the tanks as empty as feasible without generating additional wastewater. After the sludge is removed, a second pumping effort will remove the liquid phase. The liquid will be pumped via a filtration system to polyethylene waste containers. Tank V-9, TSF-18, will be pumped in a single effort, combining the liquid and sludge phases. The liquid will be extracted from the sludge and recirculated in a process similar to that used for the TSF-09 tanks. Additional tools may be used to reach behind the baffle.

Although the tanks will be rendered as empty to meet the TSDF's WAC for disposal as debris, residual material may remain in the tank interiors. Cement or grout may be added to the tank interior to secure any residual material.

Sludge removed from the tanks will remain segregated by tank. The sludge will be repackaged into 55-gal drums equipped with an internal dewatering system (Appendix A, Drawing 12 of 20). The waste volume to be added to each container has been calculated based on current characterization data (Appendix C, ABQ02-HP002) so that less than 4 curies Sr-90 (sludge disposal facility limit) and less than 15 grams of fissile material (shipping cask limit) will be placed in each container. This volume will be confirmed or modified based on characterization sampling and analysis of the individual sludge HICs. The sludge dewatering process is necessary to meet the transportation requirements. The internal dewatering system will be used to dewater the sludge by taking suction on the drum through an array of filters.

Liquid waste will be treated in a process system (e.g., a filtering system using granular-activated carbon and oil filters) designed to reduce contaminant concentrations to meet LDRs. Following treatment and waste sampling, the liquid may require solidification to meet transportation and WAC requirements.

The TAN-1704 valve pit, managed under the RCRA-regulated VCO, may contain approximately 200 gal of liquid. The liquid will be pumped and managed separately from the CERCLA components. Storage, treatment, and disposal of this waste are not part of this project.

6.2.2.3 Tank Excavation and Removal. A second Readiness Assessment will be conducted before excavation activities commence. Following the assessment review, the CERCLA and non-CERCLA components will be removed in the following sequence: (1) the aboveground sand filter; (2) piping surrounding Tanks V-1, V-2, and V-3; (3) Tanks V-1, V-2, and V-3; (4) the remaining lines associated with these tanks; (5) Tank V-9, the RCRA-regulated TAN-1704 valve pit and ancillary piping to both units; and (6) remaining VCO lines within the AOC (Appendix A). Excavated soil within the AOC will be managed as radioactive and hazardous waste according to the Waste Management Plan (INEEL 2001d) and sampled to meet the TSDF's WAC. As part of all excavation activities, trench shielding will be installed as designed to protect building foundations and worker safety. Once piping has been cut and removed, the tanks will be visually inspected for integrity. Areas of failed tank or piping integrity will be identified and documented for soil sampling purposes. The tanks and piping will be packaged in accordance with transportation requirements and temporarily staged. During the excavation and removal of components managed under the VCO, the units will be segregated and managed in accordance with RCRA regulations. Items to be removed and the regulatory authority are indicated in Appendix A. Following sampling of excavation floors, described in the *Confirmation Field Sampling Plan for the V-Tanks, TSF-09/18, at Waste Area Group 1, Operable Unit 1-10 Remedial Action* (DOE-ID 2001b), and receipt of acceptable results, the trench shielding will be removed. The excavation

will be backfilled with clean soil. The placement of a geotextile membrane between contaminated soil and clean soil will serve as a delineation marker that will allow future remedial action to determine the limits of contamination.

6.2.2.4 Decontamination. Upon completion of tank and soil removal, equipment designated in the *Decontamination Plan, V-Tanks, Waste Area Group 1, Operable Unit 1-10 Remedial Action* (WESTON 2001a) will be decontaminated. Large equipment will be decontaminated after final use. The decontamination pad will be established in the Drum Storage/Water Storage/Decontamination Area (Appendix A, Drawing 5 of 20). Accumulated water from precipitation within the berm will be pumped daily, as needed, to waste containers. Decontamination solution or spills will be removed immediately. To allow for a single decontamination effort, large equipment will be temporarily staged within the controlled area. The level of decontamination will be determined by the contaminants with which the equipment has had contact. Waste categories anticipated are Hazardous Waste (RCRA regulated), Low Level Waste (Radioactive), Mixed Low Level Waste, and Mixed Low Level Waste with PCBs (TSCA regulated). Procedures to be used for the decontamination of equipment and supplies in accordance with the regulations governing these waste categories are described in the *Decontamination Plan* (WESTON 2001a). These wastes will be managed in accordance with the *Waste Management Plan for the V-Tanks, TSF-09/18, at Waste Area Group 1, Operable Unit 1-10 Remedial Action* (INEEL 2001a).

6.2.2.5 Demobilization. Demobilization will occur following the completion of field activities. After the majority of equipment has been decontaminated, the temporary waste storage areas, decontamination pad, and access routes will be closed (decommissioned). Additional spot decontamination will follow these activities. Support facilities, such as office and storage areas, will be emptied. Control fences and signage will be established in accordance with the requirements of the *Institutional Control Plan for the Test Area North, Waste Area Group 1* (DOE-ID 2000e).

6.2.2.6 Soil Remediation. Contaminated soil from historical surface releases resulting from former V-Tank operations will be further delineated after the excavation and removal of the tanks. The area to be investigated will not be limited to the AOC. The field effort will include the mobilization and sampling of the area to define horizontal and vertical extent and the assessment of the sample results. Should the sampling effort identify contaminated soil in excess of risk-based activities/concentrations, excavation will be continued until the contamination is reduced to below acceptable levels. The risk from radionuclides and hazardous constituents shall be less than 1 in 10,000 after 100 years of radionuclide decay. Upon completion of excavation, confirmatory soil samples will be collected from the base of the excavation to verify that cleanup goals have been met and that the RAO has been achieved. Excavated soil will be sampled for WAC and disposed of at the INEEL CERCLA Disposal Facility (or other acceptable facility).

6.3 Remedial Action Sampling

6.3.1 Confirmatory Sampling of Excavation Floor Soils

Following excavation of the V-Tanks, piping, and ancillary equipment, the soils on the floor of the excavation will be sampled. Confirmation sampling will demonstrate that the excess cancer risk from all contaminants from the excavation floor soils is less than 10^{-4} and hazard quotient less than 1.

A multiphased sampling approach will be used that incorporates (1) initial soil survey for gamma-emitting radionuclides and VOCs, (2) judgmental sampling of soils that may be discolored or otherwise indicative of contamination, and (3) random, grid-based sampling of excavation floor soils. Samples will be collected from the surface 0 to 0.6 m (0 to 2 ft) and shallow subsurface 0.6 to 1.2 m (2 to 4 ft). Samples will be analyzed for radionuclides, Appendix VIII constituents, and PCB constituents. Should analysis

reveal contaminants greater than the FRG, additional soil will be excavated to comply with remedial action performance objectives. Additional excavation below the safe limit of shoring installed for the tank removal will not be conducted until precautionary measures are in place and proper approval obtained. Soil sampling guidance is provided in the *Confirmation Field Sampling Plan for the V-Tanks, TSF-09/18, at Waste Area Group 1, Operable Unit 1-10 Remedial Action* (DOE-ID 2001b). Verification sampling will be conducted following additional soil excavation (if required).

6.3.2 Waste Characterization

Sludge from each V-Tank will be pumped from the tank into a polyethylene container where liquid within the sludge will be extracted and removed. Sludge from each tank will not be mixed. The sludge will then be sampled in accordance with the Field Sampling Plan for the V-Tanks (DOE-ID 2000c) for the TSDF's WAC. The sludge will then be repackaged into 55-gal drums and further dewatered, if required, in a manner that ensures compliance with the TSDF's WAC. Specifically, each sludge waste container will contain less than 4 Ci Sr-90 (sludge disposal facility limit) and less than 15 grams total fissile material (shipping cask limit). The sludge will be managed in accordance with the *Waste Management Plan for the V-Tanks, TSF-09/18, at Waste Area Group 1, Operable Unit 1-10 Remedial Action* (INEEL 2001d). The liquid from each tank will be treated using a series of filters and pumped into waste containers. As the liquid will be treated to meet LDR standards, the liquid will not necessarily be segregated according to the tank of origin. Following treatment, the liquid will be sampled for the TSDF's WAC and LDR. If required, the liquid will be solidified to meet transportation and disposal requirements. Water analysis will ensure compliance with the TSDF's WAC. The RCRA-regulated valve pit contents will be pumped and managed separately from the CERCLA waste based upon existing sampling data. These liquids will be managed in accordance with the Waste Management Plan (INEEL 2001d).

Excavated soil will be sampled for the TSDF's WAC. The soil will be packaged in 7.3-m³ (250-ft³) polyester bags or rolloffs following sampling. The sand filter contents will be packaged separately from the excavated soil and will be placed in a 55-gal drum.

Tanks, ancillary piping, equipment, and personal protective equipment (PPE) will be not be directly sampled. The excavated tanks and piping will be characterized based on their respective V-Tank sludge sampling results. The TAN-1704 valve pit piping and concrete box will be segregated from the CERCLA components. Hazardous waste determination for PPE worn within the controlled area will be based on contact with hazardous wastes and will be managed in accordance with the Waste Management Plan (INEEL 2001d).

Decontamination water and stormwater will be collected and segregated, as appropriate, based on origin into water storage containers/tanks located in the drum storage/water storage/decontamination area, and characterized. Stormwater will be placed in a 10,000-gal tank and decontamination water will be placed in a 1,000-gal container. The waste will be managed in accordance with the characterization. If characterization determines that the collected water exceeds the TSDF's WAC or LDRs, the water will be treated with the backup water treatment process until disposal standards are achieved and then solidified and prepared for shipping, as required. If characterization determines that no hazardous constituents are present and no treatment is required, the collected water will be disposed of at an onsite facility such as the TAN percolation pond via a tanker truck.

6.3.3 Further Characterization of Contaminated Soil

Surface soils within and beyond the AOC boundary will be sampled to further characterize and define the nature and extent of potential contaminants that are present in the soil. This sampling will be conducted following tank removal. Should the sample results and analyses indicate contaminated soil in

excess of risk-based cleanup goals, additional soil will be excavated. To ensure that the contaminated soil has been removed, confirmatory soil sampling will be conducted at the base of the excavations. The details of this sampling will be presented in a future revision of the *Confirmation Field Sampling Plan for the V-Tanks, TSF-009/18, at Waste Area Group 1, Operable Unit 1-10 Remedial Action* (DOE-ID 2001).

6.4 Waste Management and Transportation

The remedial actions planned at TAN under the OU 1-10 ROD and this Group 2 RD/RA WP for the V-Tanks will require disposition of various waste streams, which are identified in the Waste Management Plan (INEEL 2001d) prepared as a supporting document to this Group 2 RD/RA WP. These waste streams will be managed and stored in a designated CERCLA or RCRA waste storage area until ultimate disposition in accordance with the Waste Management Plan. Under this plan, waste will be treated, if necessary, and disposed at an acceptable facility. Acceptability of the treatment and/or disposal facility is dependent upon the characterization and classification of waste in the Waste Management Plan and compliance with a treatment or disposal facility's WAC. Facilities must be either (1) a permitted treatment or disposal facility with CERCLA offsite authority, (2) an INEEL disposal facility expressly designated to accept CERCLA waste (e.g., the INEEL CERCLA Disposal Facility), (3) a site with disposal authorization from DOE Headquarters (e.g., the Radioactive Waste Management Complex), or (4) an onsite industrial landfill (e.g., Central Facilities Area landfill).

The CERCLA site for waste management purposes, as defined in the *Federal Facility Agreement and Consent Order*, is the entire INEEL site area. The CERCLA site includes waste management and disposal areas such as the INEEL CERCLA Disposal Facility Complex, the Central Facilities Area Industrial Landfill, the Radioactive Waste Management Area, Argonne National Laboratory-West, and interim storage at Test Area North. Waste generated during remediation activities and stored in a temporary accumulation area within the AOC will be moved to one or more of the waste management areas within the INEEL site or sent offsite for storage, treatment, or disposal. Hazardous waste generated during remediation activities that leaves the AOC will be required to meet LDR standards prior to disposal either onsite or offsite.

Table 6-2 provides a summary of the handling and packaging requirements for each of the anticipated waste streams. Included in the table are estimated volumes, waste classifications for near surface disposal, Department of Transportation (DOT) waste-shipping classifications and packaging requirements, and planned disposal facilities. The information in the table is based on currently available sampling data and will be validated using the results of sampling.

Table 6-2. Proposed waste handling and packaging for remediation waste.

Anticipated Waste Streams		Estimated Waste Volume	Waste Class (10 CFR 61.55)	DOT Classification	Minimum DOT Package Type	Planned DOT Package	Transport Cask/Exclusive Use ¹	Planned Disposal Facility ²	References
Piping	V-Tank ³	388 linear ft or 52 ft ³	Class A–Debris	LSA II	Strong Tight	Lift-Liner™ System (88 in.) Bags/Waste Boxes (IP2)	Exclusive Use	Envirocare	Appendix C Calculation ABQ13
	Other ⁴	200 linear ft or 27 ft ³	Class A–Debris	LSA II	Strong Tight	Lift-Liner™ System (88 in.) Bags/Waste Boxes (IP2)	Exclusive Use	Envirocare	None
	VCO Valve Pit	8 linear ft or 1 ft ³	Class A–Debris	LSA II	Strong Tight	Lift-Liner™ System (88 in.) Bags/Waste Boxes (IP2)	Exclusive Use	TBD ⁵	None
Underground Storage Tanks	Tank V-1	1,570 ft ³	Class A–Debris	LSA II	Strong Tight	Shrink wrap/Bags ¹²	Exclusive Use	Envirocare	Appendix C Calculation ABQ13
	Tank V-2	1,570 ft ³	Class A–Debris	LSA II	Strong Tight	Shrink wrap/Bags ¹²	Exclusive Use	Envirocare	Appendix C Calculation ABQ13
	Tank V-3	1,570 ft ³	Class A–Debris	LSA II	Strong Tight	Shrink wrap/Bags ¹²	Exclusive Use	Envirocare	Appendix C Calculation ABQ13
	Tank V-9	50 ft ³	Class A–Debris	LSA II	Strong Tight	Shrink wrap/Bags ¹²	Exclusive Use	Envirocare	Appendix C Calculation ABQ13
Sludge	Tank V-1	520 gal	Class B–Dewatered Sludge	Type B	Type B	55-gal drums inside Type B cask ⁶	Duratek CNS-8-120B	ATG	Appendix C Calculation ABQ02-002
	Tank V-2	520 gal	Class B–Dewatered Sludge	Type B	Type B	55-gal drums inside Type B cask ⁶	Duratek CNS-8-120 B	ATG	Appendix C Calculation ABQ02
	Tank V-3	652 gal	Class B–Dewatered Sludge	Type B	Type B	55-gal drums inside Type B cask ⁶	Duratek CNS-8-120 B	ATG	Appendix C Calculation ABQ02
	Tank V-9	250 gal	Class B–Dewatered Sludge	Type B	Type B	55-gal drums inside Type B cask ⁶	Duratek CNS-8-120 B	ATG	Appendix C Calculation ABQ02

Table 6-2. (continued).

Anticipated Waste Streams		Estimated Waste Volume	Waste Class (10 CFR 61.55)	DOT Classification	Minimum DOT Package Type	Planned DOT Package	Transport Cask/Exclusive Use ¹	Planned Disposal Facility ²	References
Liquids ¹⁰	Tank V-1	1,164 gal	Class A–Liquid	LSA II	Strong Tight	Duratek PL-8-120 MT/Leakproof polyethylene tanks	Exclusive Use	ICDF/Envirocare	Appendix C Calculation ABQ02
	Tank V-2	1,076 gal	Class A–Liquid	LSA II	Strong Tight	Duratek PL-8-120 MT/Leakproof polyethylene tanks	Exclusive Use	ICDF/Envirocare	Appendix C Calculation ABQ02
	Tank V-3	7,647 gal	Class A–Liquid	LSA II	Strong Tight	Duratek PL-8-120 MT/Leakproof polyethylene tanks	Exclusive Use	ICDF/Envirocare	Appendix C Calculation ABQ02
	Tank V-9	70 gal	Class A–Liquid	LSA II	Strong Tight	Duratek PL-8-120 MT/Leakproof polyethylene tanks	Exclusive Use	ICDF/Envirocare	Appendix C Calculation ABQ02
	VCO Valve Pit	200 gal	Class A–Liquid	LSA II	Strong Tight	Duratek PL-8-120 MT/Leakproof polyethylene tanks	Exclusive Use	TBD ⁵	None
Stormwater	—	15,000 gal	Class A–Liquid	LSA II	Strong Tight	Tanker Truck	Exclusive Use	TAN Percolation Pond	None
Decontamination water	—	2,500 gal	Class A–Liquid	LSA II	Strong Tight	Duratek PL-8-120 MT/Leakproof polyethylene tanks	Exclusive Use	ICDF/Envirocare	None
Miscellaneous	Sand Filter contents	0.7 ft ³	Class B–Soil	LSA II	Strong Tight	55-gal drum	Exclusive Use	ATG	Appendix C Calculation ABQ02

Table 6-2. (continued).

Anticipated Waste Streams		Estimated Waste Volume	Waste Class (10 CFR 61.55)	DOT Classification	Minimum DOT Package Type	Planned DOT Package	Transport Cask/Exclusive Use ¹	Planned Disposal Facility ²	References
Soil	Around V-Tanks/Pipes	922 yd ³	Class A–Soil	LSA II	Strong Tight	Lift-Liner™ System (88 in.) Bags/Rolloffs	Exclusive Use	ICDF	None
	Additional Excavated Soil ⁸	2,200 yd ³	Class A–Soil	LSA II	Strong Tight	Lift-Liner™ System (88 in.) Bags/Rolloffs	Exclusive Use	ICDF	None
PPE	—	350 ft ³	Class A–Debris	LSA II	Strong Tight	55-gal drums	Exclusive Use	ICDF/Envirocare	None
Concrete	VCO Valve Pit	88 ft ³	Class A–Debris	LSA II	Strong Tight	Lift-Liner™ System (88 in.) Bags	Exclusive Use	TBD ⁵	None
	Sand filter	22 ft ³	Class A–Soils	LSA II	Strong Tight	Lift-Liner™ System (88 in.) Bags	Exclusive Use	ICDF/Envirocare	None
Culverts	—	36 linear ft	Class A–Debris	LSA II	Strong Tight	Lift-Liner™ System (88 in.) Bags	Exclusive Use	Envirocare	None
Solid Waste	Trash	50 yd ³	Survey Clean	Radiologically Clean	N/A	Dumpster	N/A	INEEL Industrial Landfill	None
10,000-gal tank	—	—	Survey Clean	Radiologically Clean	N/A	N/A	N/A	INEEL for Future Use	None
Sludge HICs	—	20 yd ³	Class A	LSA II	Strong Tight	Shrink Wrap/Bag	Exclusive Use	Envirocare	None
Pumps/Hoses/Valves	—	20 yd ³	Class A–Debris	LSA II	Strong Tight	B25	Exclusive Use	Envirocare	None
Water Treatment Media and Filters	—	660 gal	Class A or B ⁹	LSA II	Strong Tight	55-gal drums	Exclusive Use	Envirocare/ATG	None
Sand Bags	—	10 yd ³	Clean	—	—	—	—	INEEL Landfill	None
Sampling Equipment, Tents, Glove Bags, Misc. Tools, Tarps, and Rags	—	20 yd ³	Class A–Debris	LSA II	Strong Tight	B25s/Lift Liner Bags	Exclusive Use	ICDF/Envirocare	None

Table 6-2. (continued).

Anticipated Waste Streams		Estimated Waste Volume	Waste Class (10 CFR 61.55)	DOT Classification	Minimum DOT Package Type	Planned DOT Package	Transport Cask/Exclusive Use ¹	Planned Disposal Facility ²	References
Gravel for onsite roads	—	475 yd ³	Class A	LSA II	Strong Tight	Lift Liner	Exclusive Use	ICDF/Enviro care	None
Spill Platforms/ Plastic Liners	—	50 yd ³	Class A—Debris	LSA II	Strong Tight	Lift Liner	Exclusive Use	ICDF/Enviro care	None
Concrete Shielding	—	50 yd ³	Survey Clean	—	—	—	—	INEEL for Future Use	None
Shoring/Trench Shielding	—	300 linear ft	Survey Clean	—	—	—	—	Return to owner—rented	None
Uncontaminated Materials (Misc.) ¹¹	—	35 yd ³	Survey Clean	—	—	—	—	INEEL Landfill	—
PCB Decontamination Materials (Wipes, Rags, Kerosene, etc.)	—	10 ft ³	TSCA Waste or MLLW Class A	LSA II	Strong Tight	55-gal drum	Exclusive Use	Envirocare	—

N/A = Not Applicable

TBD = To be determined

LSA = Low Specific Activity

ICDF = INEEL CERCLA Disposal Facility

ATG = Allied Technology Group

1. Exclusive Use is defined by 49 CFR 173.403.

2. The planned disposal facility may be another disposal facility based on Waste Acceptance Criteria as documented in the Waste Management Plan (INEEL 2001a).

3. V-Tank piping refers to those pipes that carried V-Tank contents.

4. Other piping refers to those pipes that carried material other than V-Tank contents.

5. The planned disposal facility is to be determined by the VCO Program.

6. Shipment will occur in Transport Cask to meet DOT requirements.

7. Selected disposal facility will be based on hazardous waste determination at the time of generation.

8. The volume of additional excavated soil is based on the following assumptions. In the area of excavation (1,248 ft²), soil will be excavated to 2 ft below the tank bottoms; in the AOC (4,000 ft²), the soil will be excavated to 2 ft; and in the remainder of the fenced area (53,000 ft², see Appendix A drawings), the soil will be excavated to 1 ft.

9. The classification of the water treatment media will require sampling to determine the disposal option.

10. Liquids must be solidified prior to land disposal.

11. Air ducts, concrete, electrical lines, air lines, control equipment, etc.

12. Specially fabricated lift liner bag to meet DOT packaging criteria.

6.5 Inspections

6.5.1 Prefinal Inspection

The Agencies, or their designees, will conduct prefinal inspections at three remedial action milestones. The initial inspection will be conducted prior to tank contents removal after the Readiness Assessment has been completed. A second inspection will occur following tank removal and backfill of the excavations. The third prefinal inspection, which may be the final inspection for the V-Tanks sites (TSF-09 and TSF-18), will be conducted once all contaminated soil is excavated and removed from the site. The three prefinal inspections will provide assessments during the remedial action. The DOE-ID will notify the Agencies approximately two weeks prior to the prefinal inspection dates. The inspections will determine the status of remediation activities, including outstanding requirements and actions necessary to resolve any identified issues. All outstanding requirements, along with the actions required to resolve them, will be identified and approved by the Agencies during the prefinal inspections. At the Agencies' discretion, the prefinal inspections may take place without a site visit.

A checklist used to document the prefinal inspections will be developed and implemented upon approval by the Agencies. Action for resolution and the anticipated schedule of completion will be noted next to the outstanding items and documented on the prefinal inspection checklist.

The prefinal inspections will be documented in prefinal inspection reports, which will contain the following elements:

- Names of the inspection participants
- Inspection checklist(s) containing specific project systems, components, startup procedures, or other areas to be inspected to constitute acceptance of remediation activities
- Discussion of all documented inspection findings
- Corrective actions to be taken to correct the deficiencies identified in the inspections, including the required corrective action, acceptance criteria or standards, and planned dates for completion of the actions
- Date for the final inspection.

The prefinal inspection reports will be issued to indicate that the objectives of the ROD (DOE-ID 1999) are being met. The prefinal inspection reports may not be revised or finalized. The inspection will be finalized in the remedial action report documenting the prefinal inspection process. The completed prefinal inspection checklist may be included as an appendix to the remedial action report in accordance with Section 8.4 of the FFA/CO (DOE-ID 1991).

In addition to the prefinal inspections, site visits may be conducted by the Agencies at various points during the project. These site visits will not use prefinal inspection document requirements.

6.5.2 Final Inspection

The final inspection will be scheduled and conducted at completion of the V-Tanks remedial action. The Agency project managers, based on the results of the prefinal inspections, will determine the need for a final inspection. The final inspection, as conducted by the Agencies' project managers or their designees, will confirm resolution of all outstanding items identified in the prefinal inspection and verify

that the OU 1-10 remedial action has been completed in accordance with the requirements of the ROD (DOE-ID 1999).

The final inspection will be completed following demobilization, after all excess materials and nonessential construction equipment have been removed from the sites, and the sites are considered functional and operational. Some equipment may remain onsite to repair items identified during the final inspection. Waste will be located in interim storage areas or transported to the approved TSDF.

A final inspection report will be prepared and submitted to the Agencies for review as a secondary document. The final inspection report will include:

- Identification of the work defined in this Group 2 RD/RA WP and certification that the work was performed and final remediation goals have been met.
- Explanation of any modifications to the Group 2 RD/RA WP.
- Any modifications made to the remedial design during the V-Tanks remedial action phase, including the purpose of the performed modifications and results of the modifications.
- Problems encountered during the V-Tanks remedial action and resolutions to these problems.
- Any outstanding items from the prefinal inspection checklist that were identified and described; in responding to comments received, the prefinal inspection checklist will not be revised, but rather will be finalized in the context of the final report.
- An Operations and Maintenance (O&M) Plan update, if necessary.
- As-built drawings showing final contours and piping (as applicable).

The V-Tanks final inspection report, finalized through formal Agency review and comment resolution, will be incorporated into the OU 1-10 remedial action report, a primary document that will be submitted after completion of the OU 1-10 Group 3 remedial action and inspection. The draft OU 1-10 remedial action report will be submitted within 60 days after the final inspection for OU 1-10 Group 3 sites. Requirements for the OU 1-10 remedial action report will be addressed in the OU 1-10 Group 3 RD/RA WP.

6.6 Supporting Documents

The following sections provide a brief description of the documents that are associated with the V-Tanks remedial action activities, which are addressed in this RD/RA WP.

6.6.1 Remedial Action Confirmation Field Sampling Plan

The remedial action confirmation field sampling plan (FSP) (DOE-ID 2001b) specifies data needs, sampling objectives, sampling locations and frequencies, procedures, and the controls necessary to characterize the soils on the floor of the excavation following tank, pipe, and ancillary equipment removal (Section 6.2.1). The FSP is developed using the established EPA Data Quality Objectives process.

The FSP also addresses sampling requirements for secondary waste generated throughout the tank remediation. Although the intent is to use process and historical data to characterize secondary waste for disposal, there may be instances when field surveys and/or physical sampling and analysis will be

required. Additional waste characterization sampling will be performed for the V-Tank contents. This sampling will be performed in accordance with the existing *Field Sampling Plan for the V-Tanks, TSF-09/18, at Waste Area Group 1, Operable Unit 1-10 Remedial Action* (DOE-ID 2000c).

Revisions to the FSP will also address sampling to satisfy data needs for further soil characterization to determine the nature and extent of contamination at the V-Tank sites.

6.6.2 Health and Safety Plan

A site-specific HASP (INEEL 2001c) will be prepared by the INEEL to provide safety guidance applicable to INEEL staff providing oversight and construction management support for this remediation project. It is a working document that is reviewed and modified accordingly as the project planning documents are developed and finalized, and it covers the following items:

- Task-site responsibility
- Personnel training
- Occupational medical program and medical surveillance
- Safe work practices
- Site control and security
- Hazard evaluation
- Personal protective equipment
- Personnel decontamination and radiation control
- Emergency response for the project sites.

In addition, the subcontractor will develop a project HASP (WESTON 2001b) that incorporates hazard analyses for each task associated with the V-Tank remediation. It aligns closely with the INEEL HASP and provides safety guidance for the subcontractor to follow as they perform the remediation activities.

Safe work documents, such as radiation work permits and job safety analyses, will be developed in accordance with existing INEEL procedures and systems to implement the HASP requirements. They will be modified, supplemented, or generated (as necessary) during the work activities to address changing conditions onsite or revisions to the work methods described in the planning documents.

6.6.3 Decontamination Plan

For the purposes of this plan, the word "decontamination" is defined as those activities required to decontaminate equipment, supplies, and exteriors of waste containers. It does not include the removal of the tank sludge from the tanks, either as part of the initial pumping process or any subsequent removal of interior materials, nor any in-tank contamination fixation or grouting. Finally, the decontamination of PPE will be addressed as a safety issue in the project-specific HASP.

The majority of the field activities that will be conducted as part of the V-Tank remedial action involve the use of various types of equipment to handle radioactive, hazardous, and PCB waste materials. The equipment may be disposed of (if highly contaminated), decontaminated to allow reuse within the INEEL (if remaining contamination has fixed radioactivity), or decontaminated to free release for radiological, hazardous, and PCB constituents. The Decontamination Plan (WESTON 2001a) provides the procedures to be used to meet the regulatory, INEEL, and designated TSDF's requirements that apply to the decontamination activities.

6.6.4 Waste Management Plan

A Waste Management Plan has been prepared as a supporting document to this Group 2 RD/RA WP. The Waste Management Plan describes waste management activities for the V-Tanks' remedial action. The plan identifies waste streams that will be generated, based upon the design and planned implementation of the remedial action. The Waste Management Plan details the approach for waste management, minimization, and disposition. In addition to newly generated waste streams, the Waste Management Plan addresses existing V-Tanks' waste streams that are currently stored at the INEEL from past V-Tanks' activities, which include sampling equipment and PPE from routine monitoring. Ultimate disposition of the waste streams generated or existing for the V-Tanks is based upon the characterization and classification of each waste stream, as well as WAC for acceptable treatment and/or disposal facilities.

6.6.5 Operations and Maintenance Plan

The *Operations and Maintenance Plan for Test Area North, Operable Unit 1-10* (DOE-ID 2000b) covers requirements for ongoing maintenance and inspection and environmental monitoring for OU 1-10 sites following the completion of remedial action. The plan also references and interfaces with the activities covered in the *Institutional Control Plan for the Test Area North Waste Area Group 1* (DOE-ID 2000e) and further addresses requirements for 5-year reviews. The O&M Plan may be revised, as necessary, to incorporate changes and additions identified during the implementation of the plan.

6.6.6 Institutional Control Plan

The V-Tank remedial action will implement institutional controls in accordance with the *Institutional Control Plan for the Test Area North Waste Area Group 1* (DOE-ID 2000e). The plan provides institutional control requirements for all WAG 1 sites requiring controls and inspection items for the annual inspections. The Institutional Control Plan may be revised, as necessary, to incorporate changes and additions identified during the implementation and subsequent 5-year reviews.

6.6.7 Spill Prevention/Response Program

Any inadvertent spill or release of potentially hazardous materials will be subject to project-specific spill prevention controls and countermeasures plan and the substantive requirements contained in the *Emergency Plan/RCRA Contingency Plan* (INEEL 1998) for TAN. Materials or substances will be handled in accordance with the recommendations of the applicable material safety data sheets or waste analyses, which will be located onsite. In the event of a spill, the emergency response plan contained in the project HASP will be activated. All materials and substances on the work site will be stored in accordance with the applicable regulations and will be stored in approved containers. An appendix to the *Emergency Plan/RCRA Contingency Plan* (INEEL 1998) will be prepared for the Interim Storage Sludge Facility.